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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/071,166	02/08/2002	Richard E. Smalley	11321-P021US	8622

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EXAMINER	
HENDRICKSON, STUART L	
ART UNIT	**PAPER NUMBER**
1754	

DATE MAILED: 06/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary

Application No.	Applicant(s)
10/071166	Smalley
Examiner	**Group Art Unit**
Hendrickson	1154

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication .
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

☐ Responsive to communication(s) filed on ________.

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle,* 1935 C.D. 1 1; 453 O.G. 213.

Disposition of Claims

☒ Claim(s) 1-70 is/are pending in the application.

Of the above claim(s) 51-68 is/are withdrawn from consideration.

☐ Claim(s) ________ is/are allowed.

☒ Claim(s) 1, 3, 6-15, 17, 20-26, 30, 31, 34, 35, 37-46, 48-50, 69, 70 is/are rejected.

☒ Claim(s) 2, 4, 5, 16, 18, 19, 27-29, 32, 33, 36, 47 is/are objected to.

☒ Claim(s) 1-70 are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The proposed drawing correction, filed on ________ is ☐ approved ☐ disapproved.

☐ The drawing(s) filed on ________ is/are objected to by the Examiner.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 11 9(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number)________.

☐ received in this national stage application from the International Bureau (PCT Rule 1 7.2(a)).

*Certified copies not received:________.

Attachment(s)

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). ________

☐ Notice of Reference(s) Cited, PTO-892

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Interview Summary, PTO-413

☐ Notice of Informal Patent Application, PTO-152

☐ Other ________

Office Action Summary

Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-56, 69, 70, drawn to a process, classified in class 423, subclass 447.6+.

II. Claims 57-68, drawn to a nanotube, classified in class 423, subclass 447.2.

The inventions are distinct, each from the other because:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product can be made by direct synthesis using laser ablation or arc-discharge.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter and classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Mr. Garsson on 6/8/04 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-56, 69, 70. Affirmation of this election must be made by applicant in replying to this Office action. Claims 57-68 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 3, 6-14, 20-26, 30, 31, 34, 35, 37-45, 48-56, 69 and 70 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Zimmerman et al.

The reference teaches on pg. 1362 treating impure SWNTs with chlorine and hydrogen. 'gas phase HCl (aq)' is also taught on pg. 1363. Water as gas is taught (1364), as is 360 degrees. The claims do not require that the oxidizing step and the halogenating step be separate; a treatment with elemental halogen simultaneously performs both. While the details are not given, it appears that the claimed process is performed, especially given that the present inventors and authors are from Rice. Thus, it appears to be a journal equivalent of this application. It is by 'another'. Alternately, performing the gas contacting in the present order is an obvious expedient to purify the nanotubes; In re Gibson 45 USPQ 230. Concerning claim 20, treating a material containing all the listed impurities is obvious since doing so makes a pure SWNT.

Claim 69 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over the articles cited by Zimmerman et al.

The article cites prior processes (refs 10-13) whereby MWNTs are purified by bromine and oxygen. 'gas phase HCl (aq)' is also taught on pg. 1363. Water as gas is taught (1364). Since the claim does not require that the oxidizing step and the halogenating step be separate; a treatment with elemental halogen simultaneously performs both. Thus, it appears that the known processes perfom the steps required by the claim.

Claims 1, 6-15, 17, 20-26, 37-46, 48, 51-56, 69, 70 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over EP' 042.

The reference teaches in columns 3-4 purifying SWNT with HCl and hydrogen, followed by annealing with inert gas at 400 degrees. The claims do not appear to require plural, diverse treatments (see above), nor any particular sequence. Treating SWNT with any impurities (claim 20) is an obvious expedient to purify them.

Claims 1, 6-8, 11-15, 17, 37-39 are rejected under 35 U.S.C. 102(a) as being anticipated by EP '042.

These claims do not exclude simultaneous exposure to the gases.

Claim 18 should say 'further comprises...'.

Any inquiry concerning this communication should be directed to examiner Hendrickson at telephone number (571) 272-1351.

Stuart Hendrickson
examiner Art Unit 1754